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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,507	09/25/2003	Satoru Yamaguchi	461-148	4573

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EXAMINER

RAO, G NAGESH

ART UNIT	PAPER NUMBER
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1722

DATE MAILED: 07/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/669,507	Applicant(s) YAMAGUCHI ET AL.	
	Examiner G. Nagesh Rao	Art Unit 1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

1) Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

In view of the after final response filed on 6/30/05, the finality of the last office action is revoked and a new grounds of rejection is set forth below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2) Claims 1 and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim (US Patent No. 4,227,870).

Kim 870 pertains to a screw extruder, that is capable of being used in an extrusion molding machine capable of processing ceramic material, with a double helical thread flight where there is a primary flight pattern and a secondary flight

pattern facing forward which reads on the ridge spirally formed in an axial direction, whereby a groove which reads on as a type of gap is the result of the formation between the two helical flight thread patterns intersecting with one another on the screw extruder (See Figure 4, Col 1 Lines 63-68, and Col 2 Lines 1-62). Whereby these helical flight patterns on the screw extruder are capable of dispersing and pressing material forward, since those are two commonly known traits and functions applied through the use of a screw extruder.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 3) Claims 2-4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent No. 4,227,870) in view of Rauwendaal (US Patent No. 6,136,246).

From the aforementioned Kim 870 teaches a screw extruder that has a double helical flight pattern that enables the screw to aid in dispersing and pressing the extruded material forward.

However Kim 870 fails to explicitly teach the specified degree displacement of the helical flight thread patterns around the screw extruder as claimed by the applicant.

In a screw extruder pertaining to enhanced dispersive mixing elements, Rauwendaal 246 teaches various embodiments of the screw extruder having various indentations, shapes, protrusions, and thread patterns with a varying of degree displacement that aid in dispersive mixing of the material through which routine experimentation would have allowed for the creating of thread patterns that

read within the range of 10-170 degrees (See Abstract, Col 9 Lines 1-50, Col 15 and 16 Lines 1-67).

It would be obvious to one skilled in the art to modify the teachings Kim 870 with Rauwendaal 246, since Rauwendaal 246's primary teaching aids in the enhancement of the dispersing means of the screw extruder, allowing for more effective and optimal processing conditions.

4) Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent No. 4,227,870) in view of Faber (US Patent No. 5,458,834).

From the aforementioned Kim 870 teaches a screw extruder that has a double helical flight pattern that enables the screw to aid in dispersing and pressing the extruded material forward.

Although Kim 870 is capable of being used for the molding of a ceramic body it lacks the specified teaching of using it coupled with an extrusion die able to mold ceramic honeycomb structures.

In a teaching related to extrusion, Faber 834 teaches that it is well known to have extrusion apparatuses coupled with an extrusion die capable of molding

ceramic honeycomb structures with partitioning walls at the micron level (See Col 7 Lines 57-67 and Col 8 Lines 1-31).

Therefore it would be obvious to use Kim 870 as a typical screw extruder with the ability to disperse and press forward material mixed within a molding apparatus system, as it is coupled with an extrusion die, since they are related to each other in the art of extrusion and coupled together for the purpose of producing extruded material.

5) Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent No. 4,227,870) in view of Rauwendaal (US Patent No. 6,136,246) in further view of Maillefer (US Patent No. 4,171,196).

From the aforementioned Kim 870 teaches a screw extruder that has a double helical flight pattern that enables the screw to aid in dispersing and pressing the extruded material forward.

In a screw extruder pertaining to enhanced dispersive mixing elements, Rauwendaal 246 teaches various embodiments of the screw extruder having various indentations, shapes, protrusions, and thread patterns with a varying of

degree displacement that aid in dispersive mixing of the material through which routine experimentation would have allowed for the creating of thread patterns that read within the range of 10-170 degrees (See Abstract, Col 9 Lines 1-50, Col 15 and 16 Lines 1-67).

It would be obvious to one skilled in the art to modify the teachings Kim 870 with Rauwendaal 246, since Rauwendaal 246's primary teaching aids in the enhancement of the dispersing means of the screw extruder, allowing for more effective and optimal processing conditions.

The hypothetical device taught by Kim 870 and Rauwendaal 246, however lacked the specified teaching of at least one of the threaded flight patterns capable of being used in a dispersing manner lacked through holes in the thread pattern.

In an apparatus pertaining to screw extrusion, Maillefer 196 teaches an improved screw-type extruder to increase the output in an orderly and regular flow manner.

It would be obvious to one skilled in the art to modify the hypothetical device taught by Kim 870 and Rauwendaal 246 with the teachings of Maillefer

196, in order to take advantage of the threaded pattern taught to enable a more optimal and processing condition for the extrusion molding.

6) Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent No. 4,227,870) in view of Rauwendaal (US Patent No. 6,136,246) in further view of Faber (US Patent No. 5,458,834).

From the aforementioned Kim 870 teaches a screw extruder that has a double helical flight pattern that enables the screw to aid in dispersing and pressing the extruded material forward.

In a screw extruder pertaining to enhanced dispersive mixing elements, Rauwendaal 246 teaches various embodiments of the screw extruder having various indentations, shapes, protrusions, and thread patterns with a varying of degree displacement that aid in dispersive mixing of the material through which routine experimentation would have allowed for the creating of thread patterns that read within the range of 10-170 degrees (See Abstract, Col 9 Lines 1-50, Col 15 and 16 Lines 1-67).

It would be obvious to one skilled in the art to modify the teachings Kim 870 with Rauwendaal 246, since Rauwendaal 246's primary teaching aids in the enhancement of the dispersing means of the screw extruder, allowing for more effective and optimal processing conditions.

Although the hypothetical device of Kim 870 and Rauwendaal 246 is capable of being used for the molding of a ceramic body it lacks the specified teaching of using it coupled with an extrusion die able to mold ceramic honeycomb structures.

In a teaching related to extrusion, Faber 834 teaches that it is well known to have extrusion apparatuses coupled with an extrusion die capable of molding ceramic honeycomb structures with partitioning walls at the micron level (See Col 7 Lines 57-67 and Col 8 Lines 1-31).

Therefore it would be obvious to use the hypothetical device of Kim 870 and Rauwendaal 246 as a screw extruder with the ability to disperse and press forward material mixed within a molding apparatus system, as it is coupled with an extrusion die, since they are related to each other in the art of extrusion and coupled together for the purpose of producing extruded material.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to G. Nagesh Rao whose telephone number is (571) 272-2946. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GNR



ROBERT DAVIS
PRIMARY EXAMINER
GROUP 1300/700

7/15/05